
As part of the legislation passed last session to create the new Department of Health and Human Services (DHHS), the Bureau of Health was renamed the Maine Center for Disease Control and Prevention (Maine CDC). The federal Centers for Disease Control and Prevention will be referenced as "CDC".

The purpose of the Epi-Gram is to distribute timely and science-based information to guide Maine's healthcare professionals in issues of public health and infectious disease importance and to promote statewide infectious disease surveillance.

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## June 2006 Issue Contents

# *2005 Arbovirus Surveillance in Maine: Updates and Recommendations*

## Introduction

In 2005, the Maine Center for Disease Control and Prevention (Maine CDC) continued surveillance activities for the detection of arbovirus infection in human, avian, equine, and mosquito populations. As with previous years, arboviruses routinely tested included West Nile virus (WNV), Eastern Equine Encephalitis (EEE), St. Louis Encephalitis (SLE) and Powassan virus.

## Surveillance Methods and Results

### Human

Human surveillance relies on health care providers who consider arbovirus infection in their differential diagnosis and submit specimens to the Health and Environmental Testing Laboratory (HETL) for testing. In the course of the 2005 surveillance season, 72 patients were tested for arboviruses at HETL. Another individual, a Maine resident, was tested in Massachusetts. These individuals contributed a total of 97 specimens, consisting of 46 acute sera, 13 convalescent sera and 38 cerebral spinal fluids. Common symptoms exhibited by patients included fever (61%), encephalitis (17%), and aseptic meningitis (19%). None of the patients tested was positive for WNV. One patient tested false positive for SLE and two had indeterminate results for EEE; however, all were subsequently ruled out by confirmatory tests at the federal CDC's vectorbone laboratory.

### Avian

Avian surveillance is based on sightings of dead birds, primarily corvids (i.e. ravens, crows, and blue jays) , which are reported by the public via the Maine CDC's Bird Reporting Hotline (1-888-697-5846). Dead birds determined to be viable are arranged for pick-up by a courier and tested for arboviruses by HETL. Statewide, 303 dead birds were reported. Of these, 70% (211/303) were corvids reported from all 16 counties. Thirty-three percent (69/211) of corvids were tested versus 16% (15/92) of non-corvids. Overall, nine corvids tested positive for arboviruses: eight tested positive for WNV and one tested positive for EEE. Only one of the positive birds was from outside of York County. All nine positive birds were collected in the months of August (five) and September (four). No non-corvid species tested positive for arbovirus.

### Mosquito

There are approximately 42 different species of mosquitoes in Maine. Some of them have ranges that overlap, and others have separate ranges based on their specific breeding requirements. Mosquitoes that feed only on birds are maintenance vectors, and help maintain arboviruses in nature. Bridge vectors, mosquitoes that feed on both birds and mammals, are of most concern. This type of mosquito may become infected with an arbovirus by feeding on an infected bird, and then later feed on a human, thus providing the "bridge" that allows arboviruses to spread to humans. Forty-six mosquito pools from Cumberland County and 90 pools from York County were selectively tested for WNV and EEE; mosquito species tested included both maintenance and bridge vectors. One Culiseta melanura pool (a maintenance vector) from York County tested positive for EEE in October 2005. There were no other mosquito pools that tested positive for WNV or EEE in 2005.

### Non-Human Mammals

Equines can be important indicators of epizootic activity and human risk for both WNV and EEE. They may be particularly useful sentinels in rural areas, where dead birds may be less likely to be detected. In 2002, for

example, equine WNV cases were the first indication of WNV activity in 16% (95/589) of the counties where human disease was reported in the United States. The non-human mammal component of Maine's arboviral surveillance program consists of testing any equine, llama, or alpaca that has died with neurological symptoms for WNV and EEE. All non-human mammal specimens submitted for arboviral testing are first tested for rabies. There were four non-human mammals tested for arboviruses in 2005: two horses, both from York County, tested positive for EEE in September 2005, and two llamas, also from York County, were negative for any arborviruses.

Recommendations

Human Surveillance

Although Maine did not report any human case of arboviral infection in 2005, WNV and EEE have already been detected in mosquitoes, birds, and horses while Powassan virus has been identified in humans in Maine. It is assumed, therefore, that residents or visitors to the State who are exposed to the outdoors are at risk of arboviral infection, especially during the spring, summer, and fall seasons, when temperatures are ideal for mosquitoes and ticks. For this reason, healthcare providers are advised to maintain a high index of suspicion for arbovirus infections as the warm season begins.

EEE, WNV and other arboviral infections should be seriously considered in any individual, but especially those over age 50 or younger than age 15 years, who has onset of otherwise unexplained encephalitis, meningitis, myelitis or fever in the late summer or early fall. The local presence of arboviral enzootic activity should further raise the index of suspicion. Diagnostic testing of serum and cerebrospinal fluid for arboviral infection is available at no cost through the Health and Environmental Testing Laboratory. Maine CDC requests that all specimens for arboviral testing be submitted to the State lab in Augusta rather than commercial laboratories to ensure a quicker turnaround time and immediate access to test results for surveillance and response purposes. For information on collecting and submitting specimens for testing call 1-800-821-5821.

Avian Surveillance

Avian surveillance will tentatively begin in mid-June and end in mid-October. To report a dead bird, please contact the toll-free Bird Reporting Hotline at 1-888-697-5846. Testing of dead birds in 2006 will be limited to corvids, unless there are unusual circumstances. Captive pheasants and emus are notable exceptions because they are known to be highly susceptible to EEE infection, and owners of these species or veterinarians providing care for these species are also encouraged to call the Bird Reporting Hotline if they detect severe illness or death in their birds. Even though not all dead birds will be collected or tested, all reports will be recorded; this information can be very useful in detecting clusters of dead birds that occur over time, and can indicate if and when the testing protocol should be modified.

Non-Human Mammal Surveillance

Equines, llamas, and alpacas make up an important component of the Maine CDC Arboviral Surveillance program. Owners and veterinarians are urged to report cases of illness in these species so that the Maine CDC can determine if arboviral testing is appropriate. Any equine, llama, or alpaca that dies with neurological abnormalities, or is euthanized due to illness with neurological abnormalities, should be reported to either the Maine CDC Disease Reporting Hotline at 1-800-821-5821 or the Bird Reporting Hotline at 1-888-697-5846.

Only dead animals of these species can be tested for arboviral infection, as the Maine CDC must first test them for rabies. If a veterinarian, while treating an animal of these species, obtains serology results positive

for an arbovirus, the Maine CDC urges them to report those results to the phone number stated above, even if the animal survives. It is also important that a WNV/EEE vaccination history be submitted with any specimens and included in any reports. Reports of potential non-human mammal arboviral cases can be made year-round.

Mosquito Surveillance

Mosquito surveillance will also tentatively begin in mid-June and end in mid-October. In 2006, mosquito surveillance will have a greater emphasis than avian surveillance, as it will provide a more reliable indication of at-risk areas, by identifying mosquito species, density, infection rates, and breeding areas. Mosquito surveillance will consist of collecting adult mosquitoes of both maintenance and bridge vector species, primarily from southwestern Maine and the Lewiston and Bangor areas, specifically in urban, high-population density, and other key geographic (i.e. red maple swamps, etc.) areas. Collected mosquitoes will be speciated, and selected pools will be tested for arboviruses.

To complement this effort, the Maine CDC encourages all municipalities, especially those in southern Maine, to cooperatively establish local mosquito surveillance and abatement programs. This will expand surveillance coverage as well as increase the timeliness and effectiveness of future control efforts.

**Authors: Anthony Yartel and Bob Gholson**

## *Diagnosis and Management of Tickborne Rickettsial Diseases: Rocky Mountain Spotted Fever, Ehrlichioses, and Anaplasmosis-United States*

(Condensed from the MMWR March 31, 2006; 55:1-29)

Introduction

In March of 2006, the Centers for Disease Control and Prevention, Viral and Rickettsial Zoonoses Branch, released a Morbidity and Mortality Weekly Report (MMWR) summarizing recommendations for the management of tickborne rickettsial diseases (TBRD). TBRD are clinically similar, etiologically distinct illnesses often presenting with nonspecific, “viral-like,” symptoms early in the infection. TBRD can result in severe morbidity and even death, in otherwise healthy individuals, if not treated as soon as possible with effective antimicrobial therapy. TBRD often present with nonspecific symptoms that may be difficult to distinguish from other infectious and noninfectious disease processes thereby delaying appropriate treatment.

TBRD include human granulocytotropic anaplasmosis (HGA, caused by Anaplasma phagocytophilum, and formerly known as human granulocytic ehrlichiosis), human monocytotropic ehrlichiosis (HME, caused by Ehrlichia chaffeenis), rocky mountain spotted fever (RMSF, caused by Rickettsia rickettsii), Ehrlichia ewingii infection as well as other more recently emerging TBRD.

The incidence of TBRD has risen over the past decade. The degree to which TBRD infections have risen depends on many factors: persistence of the pathogen in the environment, geographic distribution of the transmitting species of tick, life cycles and behaviors of the tick vectors and their reservoirs, behaviors that place humans at risk for tick exposure, attachment and infection and more frequent diagnosis and reporting.
Epidemiology

TBRD are reported each month of the year with the majority of cases reported from April to September. Travel related cases, infection acquired while traveling within the United States and outside the United States, are reported throughout the year as well. Males appear to be at higher risk for TBRD infection perhaps due to increased recreational and occupational exposures. The frequency of TBRD is highest in

adults. For HGA, the incidence of reported illness is most common in 60-69 year olds. For HME, the incidence of reported illness is greatest in 70 year olds and for RMSF, most commonly reported in 40-64 year olds. Higher frequency of reports in adults may be related more to susceptibility to overt infection rather than higher infection rates. RMSF and HME are most commonly reported in the south central and southeastern United States. In New England, the most common TBRD is HGA. (Note: an upcoming issue of the Epi-Gram will include a summary of Maine rickettsial disease data.)

Clinical History, Signs and Symptoms

Most infected individuals present for medical care within the first week of symptom onset, before a TBRD rash develops and before antibody to the rickettsia, ehrlichia or anaplasma begins to rise, making confirmation of rickettsial infection difficult. Clinical history taking should include identifying recent tick bite or exposure to tick habitats (within 14 days), travel to TBRD endemic areas and identifying any similar symptoms in family, friends, co-workers or pets. Clusters of cases have been recognized in families, soldiers on maneuvers, golf partners and co-workers who share similar exposures to infected tick habitat.

Early clinical presentation of HGA, HME, RMSF and E. ewingii infection include fever, shaking chills, severe headache, myalgia and malaise. Adults may complain of photophobia. Nausea, vomiting and anorexia may also be reported early in the infection. In children, with HME or RMSF, abdominal pain, altered mental status and conjunctival injection are frequently noted symptoms. Severe abdominal pain and menigoencephalitis are infrequent signs of TBRD. A rash, after the fever, is usually observed in RMSF, occasionally observed in HME and rarely evident in HGA or E. ewingii infection. . Untreated or later stage TBRD and TBRD in patients with compromised immune systems may have severe manifestations such as renal failure, myocarditis, acute respiratory distress syndrome, hypotension and toxic shock syndrome, meningoencephalitis, multiple organ failure and tissue necrosis.

Other clinical suggestions of TBRD, include abnormalities in complete blood count, metabolic panel, CSF analysis and peripheral blood smear:

- ❑ Common to TBRD:
- ❑ Leukopenia
- ❑ Thrombocytopenia
- ❑ Mild hyponatremia
- ❑ Mild elevation of hepatic transaminase levels
- ❑ Possible neutrophilic or lymphocytic pleocytosis of CSF
- ❑ Possible elevated protein of CSF
- ❑ Common to HGA and HME:
- ❑ Possible visualization of morulae in leukocytes on peripheral blood smear.

Laboratory Confirmation

Suspicion of TBRD based on epidemiological and clinical information should be confirmed with laboratory diagnostic tests. The most effective way to confirm TBRD is with indirect immunoflourescent antibody

assay, in paired serum samples, with the first serum specimen taken at least one week after onset of illness and the second specimen taken 2-3 weeks after the first. A fourfold rise in IgG or IgM, with clinical and epidemiological evidence of infection indicates a TBRD.

There are limitations to all other laboratory methods. Culture is difficult as rickettsia, ehrlichia and anaplasma are obligate intracellular pathogens making the process of culturing labor intensive. Ehrlichia chaffeensis and Anaplasma phagocytophilum produce morulae, microcolonies of pathogens that invade leukocytes. Morulae may be visualized in peripheral blood smears stained with eosin-azure dyes, such as Wright-Giemsa stain. The absence of morulae does not rule out TBRD as blood smears do not always reveal morulae and are not useful for the diagnosis of RMSF. Nucleic acid detection (PCR) and immunohistochemical (IHC) staining detection methods are not currently widely available or fully standardized. The sensitivity of these tests is dependent on the timing of sample collection, the distribution of pathogen in the sample and the specific type of rickettsial infection. Evolution of PCR testing and tests in combination may provide more thorough diagnostic information. At this time, paired serum sampling is still the gold standard for laboratory diagnosis.

Treatment and Management

Treatment is guided by clinical symptoms, history and physical and laboratory findings. If TBRD is strongly suspected, treatment should be initiated pending IFA, smear, PCR or culture results. Antibiotic coverage for TBRD, as well as other possible diagnoses (most notably meningococcal disease), should be considered to prevent severe outcomes.

Not all cases of TBRD will require hospitalization and supportive therapy. Some cases may be well-managed as outpatients with doxycycline as the antibiotic of choice for presumptive or confirmed TBRD in children and adults. Limited courses of doxycycline may be considered for children and pregnant women in situations of severe illness. Severe illness will most likely require inpatient supportive therapy.

Preventive antibiotic therapy is not recommended after a tick bite even in TBRD endemic areas. Not all ticks, even in endemic areas, are infected with rickettsia, ehrlichia or anaplasma, making the risk of infection relatively low.

Prevention

- There is no licensed vaccine. Prevention is focused on avoiding tick attachment and removing ticks promptly.
- Avoid tick-infested habitats (wooded or brushy areas, tall grass)
- Stay on well cleared trails
- Wear protective and light-colored clothing that keeps ticks from reaching skin
- Appropriately apply DEET (N,N-diethyl-m-toluamide) 10-35% for adults and no greater than 20-30% for children. An alternative to DEET, picaridin, has recently become available in the United States. Picaridin has limited data published for tick repellency, but it may provide suitable protection. Always read the label before applying a chemical repellent.
- Apply permethrin to clothing or wear permethrin treated clothing in heavily tick-infested areas and for prolonged exposure to these areas

- ❑ Check for ticks on self, children and pets often, even hours after returning from tick habitat
- ❑ Remove ticks only with gentle traction applied close to the head with tweezers or forceps
- ❑ Clean tick bite wound after tick removal

Please note: clinical signs and symptoms presented are not pathognomonic for TBRD. Diagnosis of tickborne illness is complicated. Other bacterial and viral tickborne illnesses may present with similar symptoms: Lyme Disease, babesiosis, and powassan infection. Other infectious and non-infectious disease processes may also present similarly. For more detailed clinical management guidelines, including case studies, differential diagnoses table, treatment options, tick identification and geographic distribution of cases, please see the full report at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5504a1.htm

For additional information regarding TBRD, clinical features, epidemiological information, public health control measures and prevention education please see:

http://www.cdc.gov/ncidod/dvrd/ehrlichia/index.htm

http://www.cdc.gov/ncidod/dvrd/rmsf/index.htm

or contact the Maine Center for Disease Control and Prevention at www.mainepublichealth.gov
or 1-800-821-5821

**Contributed by: Megan Kelley**

## *Rabies: What Defines an Exposure?*

Rabies is an infectious viral disease that affects the nervous system of humans other mammals. People get rabies from the bites of animals with rabies (rabid animals). Wild mammals, like a raccoon, skunk, fox, coyote, or bat, that bite or otherwise expose persons, pets or livestock should be considered potentially rabid.

Animal rabies is a relatively common occurrence in Maine, with 61 rabid animals reported in 2005 and 69 reported in 2004. Rabies is most often identified in raccoons and skunks, but is also identified in bats. Rabid animals were submitted to Maine's Health and Environmental Testing Laboratory from all on Maine's 16 counties.

Because rabies is a fatal disease, the goal is first to prevent human rabies exposure by education, pet vaccination, and stray control programs, and second, to prevent the disease by human treatment if exposure occurs. But what defines a rabies exposure? Many health care providers struggle with this question when people present to their office or emergency department concerned about rabies.

Rabies is transmitted to humans only by directly introducing the virus into bite wounds, open cuts in the skin, or onto mucous membranes from saliva or other potentially infectious material such as neural tissue. In defining an exposure consider the circumstances of the incident. Was the incident a bite, non-bit, or undetected bite exposure? These are defined below:

- ❑ Bite: defined as any breaking of the skin by teeth
- ❑ Non-bite exposure: defined as scratches, abrasions, open wounds, or mucous membranes, which have been contaminated with saliva or neural tissue (e.g., brain or spinal cord)

- Undetected bite exposure: related to bats

Rabies virus may be excreted in the saliva of infected dogs, cats and ferrets during illness and/or for only a few days prior to illness or death. Management of bite incidents of animals other than dogs, cats, and ferrets depends on the species, the circumstances of the bite, the epidemiology of rabies in the area, the biting animal's history, current health status, and potential for exposure to rabies.

How would you manage these situations?

- A six-month girl presents for a "well-baby" appointment. The mother is concerned about a dead bat she found in the child's bedroom.

- A businessman relaxing on his patio after work pulls a toy from his dog's mouth (his dog is current in his rabies vaccination). He notices a dead raccoon within his fenced yard, where his dog has been playing, and telephones for your advice.

- You receive an email from a friend who recently returned from a vacation in Central America, who was bitten by a stray dog while jogging. She solicits your medical opinion.

In each of these situations, consideration must first be given to obtaining and testing the animal in question, the bat, raccoon and stray dog. If the animals are not available for testing, each person should be consulted to determine if there is evidence of a bite or non-bite exposure. The local epidemiology of rabies can also be considered.

A1. Test the bat if available. If the bat tests positive for rabies or is unavailable for testing, initiate post exposure prophylaxis (PEP) for the six-month old girl.

A2. This is an example of a possible non-bite exposure. Test the raccoon for rabies. If the raccoon tests positive, the dog should be boostered and quarantined. PEP may be indicated for the businessman only if the he had direct contact with the raccoon's brain or other neurological tissue and an open wound at the site of contact.

A3. In this circumstance, the country and city this incident took place is important when considering PEP. If the bite occurred in an area where rabies is common in dogs, which is likely in this case, immediate PEP is warranted.

The persistent incidence of animal rabies and the critical importance of preventing human rabies cases require that clinicians be diligent in assessing potential rabies exposures. Report suspected cases of animal rabies to Maine CDC by calling 1-800-821-5821.

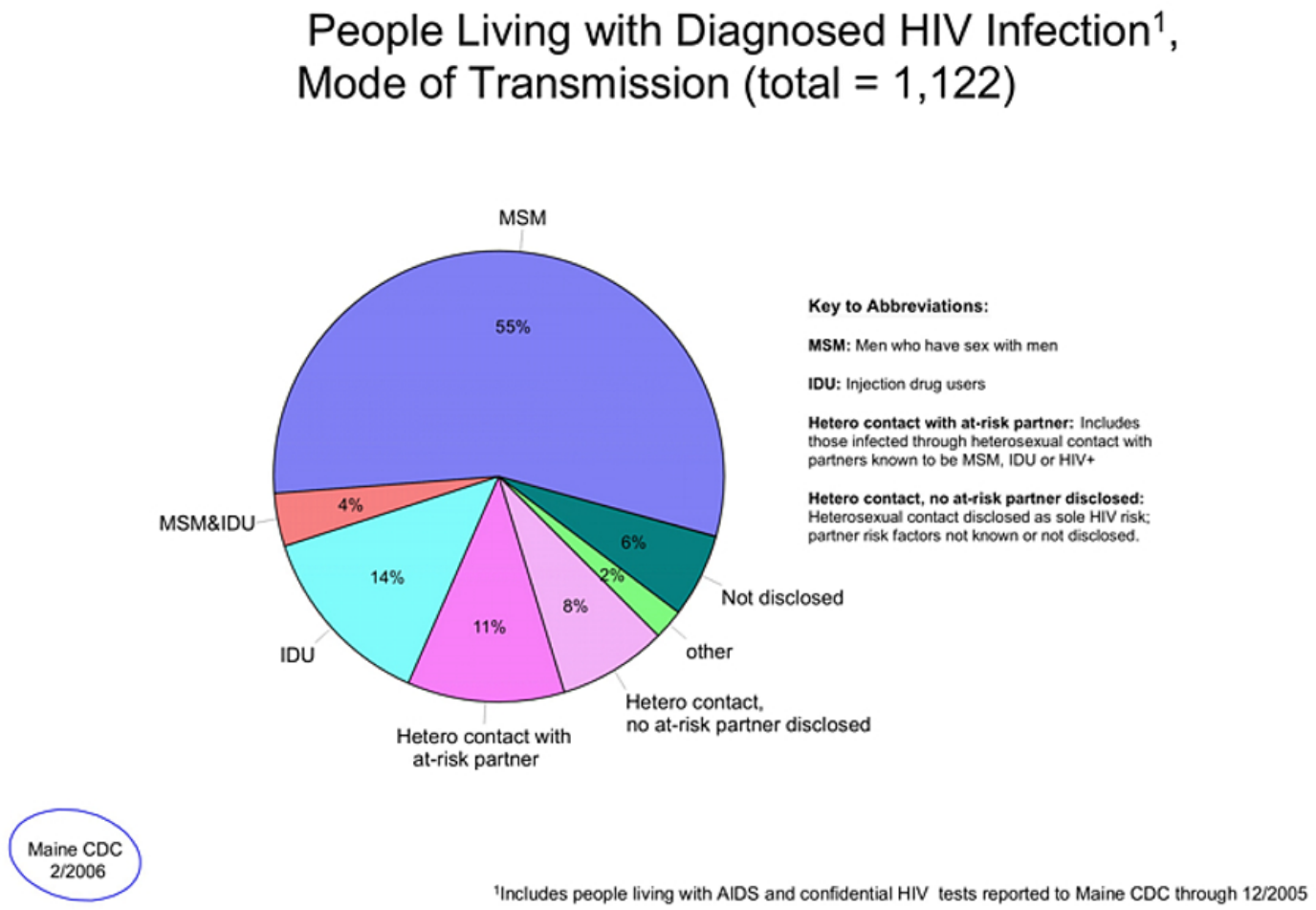
**Author: Anne Sites**

## *National HIV Testing Day: Tuesday, June 27, 2006*

The eleventh annual National HIV Testing Day is Tuesday, June 27th. This annual observance is critical to the fight against HIV/AIDS because it presents an opportunity for people throughout the state of Maine to learn their HIV status and gain the knowledge they need to take control of their health. It is estimated that approximately 400 people in Maine are HIV positive and do not know it. This represents 400 people who may unknowingly transmit HIV and who do not have access to much needed HIV medical services.

Last year, 58 people were newly diagnosed with HIV in Maine. Currently, gay, bisexual and other men who have sex with men represent over 60% of the new infections in the State of Maine. Other people at greatest risk for HIV infection include injection drug users and females who are knowingly or unknowingly partnered with an injection drug user or a man who has sex with other men.

The CDC initiative Advancing HIV Prevention: New Strategies for a Changing Epidemic calls for including HIV testing as a routine part of medical care to increase the number of HIV-infected persons who are aware of their positive serostatus. National HIV testing day is an excellent opportunity for healthcare providers to begin addressing HIV risk and testing as part of a patient's on-going health care.




**Author: James Markiewicz**

## *Data from the Maine Youth Risk Behavior Survey: Health Risks among Youth with Same-Sex Partners*

Research has shown that youth who engage in same-sex sexual contact are disproportionately affected by certain health risks when compared to youth with opposite-sex contact. Such risks include violence and harassment, suicidal ideation and behavior, alcohol and other substance use, and unhealthy weight control practices. Many of these health risks have been documented through studies of recent Youth Risk Behavior Surveys (YRBS) conducted in Massachusetts and Vermont (Robin et al., 2002).

The Maine YRBS is administered every other spring to students at randomly selected high schools and middle schools to measure a variety of health risk behaviors. In 1995, the Maine YRBS began asking high school respondents (grades 9 to 12) the gender of their sexual partners. Since 1995, just under 8% of sexually active high school students reported same-sex sexual contact. This includes youth who had sexual contact with only same-sex partners (3.6%) and those who had contact with both same- and opposite-sex partners (4%).

Data from the 1995, 1997, 2001 and 2003 Maine YRBS were aggregated to compare responses from students with same-sex sexual partners to those who had only opposite-sex partners. Initial findings demonstrate that youth in Maine who have same-sex partners are disproportionately affected by certain health risks. These risks are grouped and summarized below:

Physical safety: Students with same-sex partners were three times as likely as those with opposite-sex partners to report violence due to perceived sexual orientation. They were also more likely to report: carrying a gun; being threatened with a weapon at school; and having been forced to have sex. Females with same-sex partners were more likely to report being in a fight. Males with same-sex partners were more likely to report becoming injured in a fight and feeling too unsafe to go to school.

Suicide: Males with same-sex partners were almost four times as likely as males with opposite-sex partners to report attempting suicide.

Family support: Males with same-sex partners were less likely than males with opposite-sex partners to feel that their family loves them.

Drug use: A higher proportion of females with same-sex partners reported cocaine use at some time in the past, and a higher proportion of males with same-sex partners said they were currently using cocaine. Males and females with same-sex partners were also more likely to report having used needles to inject drugs.

Weight control and body image: Males with same-sex partners were more likely to report vomiting or taking laxatives to lose weight.

Sexual behavior: Students with same-sex partners were more likely report having multiple sexual partners. Compared to their male peers with opposite-sex partners, males with same-sex partners were more likely to report being sexually active, to having sex within the past three months, and to “rarely or never” using condoms.

In general, those students who reported contact with both same- and opposite-sex partners cited health risk behaviors in higher proportions than those with same-sex partners only. Reasons for this are not entirely clear. Differences between the two groups warrant more examination and study.

The inequalities in health status noted above are known as “health disparities” because same-sex contact does not, in itself, biologically determine or directly cause poor health status. Research has shown that sexual minority youth are remarkably healthy and exhibit impressive coping skills and resilience when faced with hostilities both at home and at school.

In Maine’s public health plan Healthy Maine 2010: Longer and Healthier Lives and Healthy Maine 2010: Opportunities for All, sexual minorities are identified as one of eight population groups affected by health disparities on which Maine CDC will focus its efforts.

**Author: Mark Griswold**

## *Pertussis in Maine: An Overview*

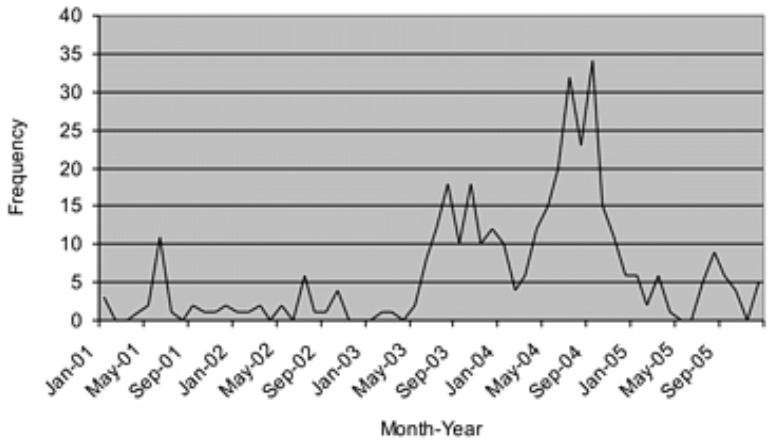
Pertussis is an acute infectious disease caused by a gram-negative rod: Bordetella pertussis. Pertussis is transmitted from person to person through aerosolized droplets. The most susceptible are infants and the geriatric population.

CDC specifies that for a case to be defined as a pertussis case, the patient must present with cough illness lasting for at least two weeks with paroxysms of coughing, inspiratory “whoop” or post-tussive vomiting without other cause. The laboratory criteria for confirmation of pertussis is the culture of B. pertussis from a naso-pharyngeal (NP) swab specimen or alternatively, the identification of B. pertussis by PCR. Both tests are performed at Maine's Health and Environmental Testing Laboratory (HETL).

Isolation of B. Pertussis from a naso-pharyngeal swab remains the gold standard for laboratory diagnosis of pertussis. However, several providers have used serological tests after a sales pitch by representatives of commercial laboratories. Maine CDC encourages clinicians to continue to use culture or PCR for laboratory confirmation of pertussis to the exclusion of all other tests. Both tests are performed at the State of Maine Health and Environmental Lab (HETL) in Augusta.

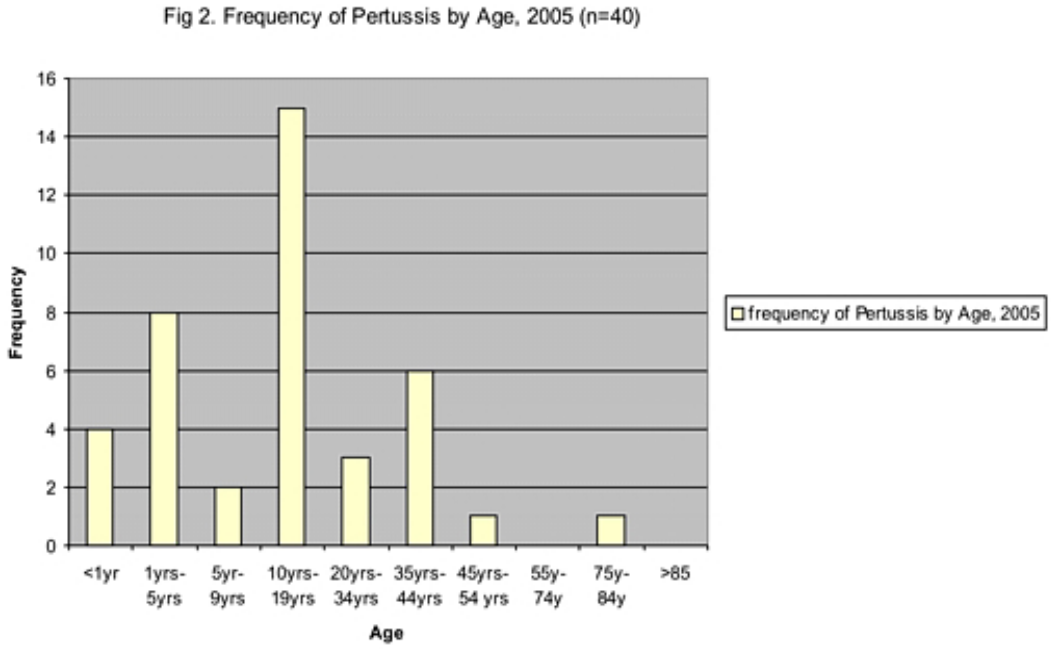
Pertussis incidence has been decreasing since the introduction of the vaccine in the 1940s. Resurgence has been noted since the 1980s, with the number of cases in 2003 equaling those of 1964. Figure 1 presents the frequency of monthly reported cases in Maine between 2001 and 2005.

Figure 1. Frequency of Cases per Month , Maine 2001-2005



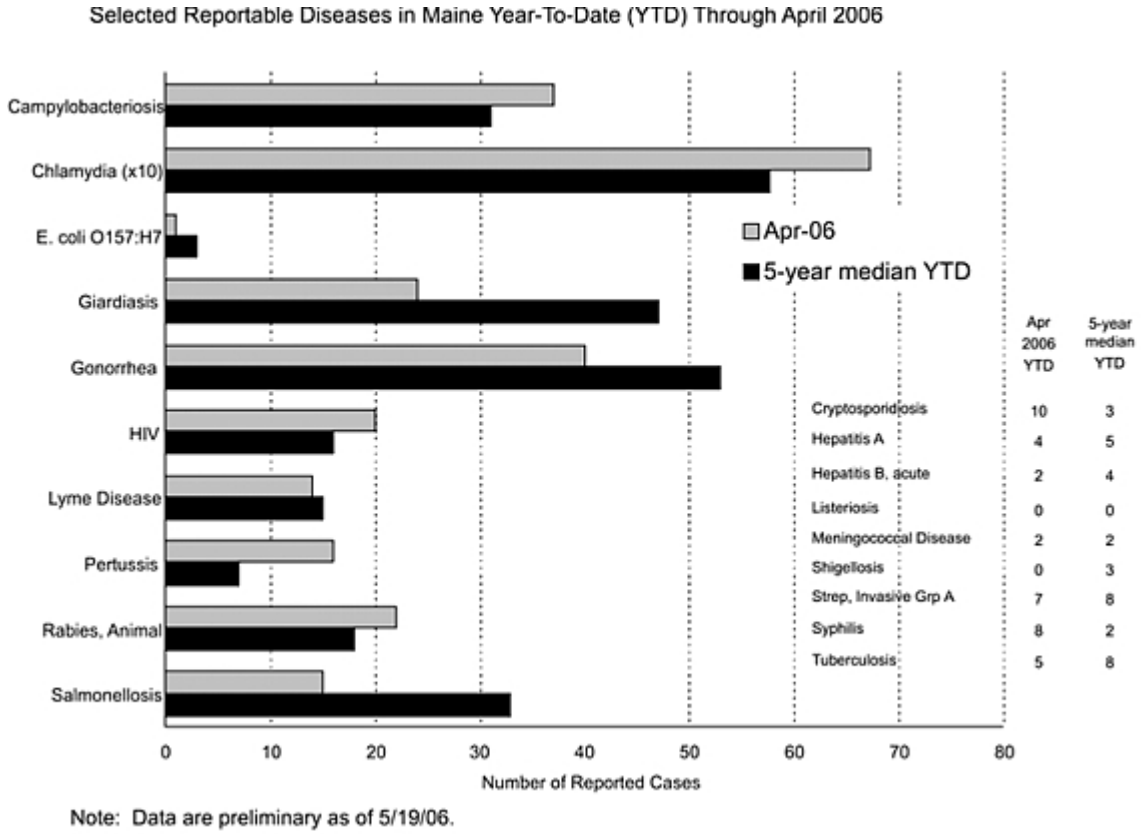

The crude incidence rate for Maine in 2005 is 5.54 per 100,000. Maine’s age-adjusted rate is 3.39 per 100,000 compared to a national average incidence rate of 3.3 per 100,000.

Figure 2 shows the age distribution of reported Pertussis cases in 2005.




**Author: Alexander G. Dragatsi**

## *Reportable Disease Graph for April 2006*




Note: Data are preliminary as of 5/19/06.

**Author: Andrew Pelletier**

## *Information for Healthcare Providers on New Tdap Vaccine*

The following was abstracted from the MMWR, March 24, 2006/Vol55/No RR-3

In March, 2006, the Center for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) provided provisional recommendations for the use of the newly available combined tetanus, diphtheria and pertussis (Tdap) vaccine for adults.

This Health Advisory provides a summary of important new recommendations. Healthcare providers are encouraged to take advantage of this information as soon as possible by reviewing their current Td vaccination practices and considering implementing policies to maximize administration of Tdap to all persons for whom the vaccine is indicated.

This information is especially relevant for practices where Td vaccine is provided to adults, including emergency departments and other settings where wound care is provided, clinicians caring for pregnant women, infants, and their families, and for health care facilities.

Background

Pertussis is a highly contagious respiratory tract infection. Although most children are protected against pertussis by vaccination during childhood, immunity wanes over time and leaves adolescents and adults unprotected. In 2004, U.S. adults 19–64 years of age accounted for 7,008 of 25,827 (27%) reported pertussis cases. The true number of cases among adults 19-64 years of age is likely much higher, estimated at 600,000 annually. The clinical presentation of pertussis in adults ranges from mild cough illness to classic pertussis (i.e., prolonged cough characterized by paroxysms, post-tussive vomiting, and inspiratory whoop). Complications include rib fractures resulting from severe cough and pneumonia requiring hospitalization. Adults with pertussis can transmit the infection to other people, including infants. Infants are at highest risk of pertussis-related complications and death compared with older age groups.

Two new vaccines are available:

A Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed (Tdap) product, ADACEL TM (sanofi pasteur), was licensed by the FDA on June 10, 2005 as a single dose booster vaccine for persons 11-64 years of age to provide protection against tetanus, diphtheria, and pertussis ( www.fda.gov/cber/label/tdapave061005LB.pdf).

Another Tdap vaccine, BOOSTRIX ® (GlaxoSmithKline Biologicals), was licensed by the FDA on May 3, 2005 for persons 10-18 years of age.

Tdap for age 11-18 will be available through the VFC (Vaccines For Children) program beginning July 1, 2006. For those not eligible for VFC the provider will have to purchase their supply of the vaccine privately.

ACIP recommendations for Tdap (ADACEL TM and BOOSTRIX ®) among adolescents 11-18 years of age were published in the March 24,2006 MMWR: Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccines . http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5503a1.htm

## Recommendations for Tdap in Adults

The following provisional recommendations for a single dose of Tdap (ADACEL TM) apply to adults 19-64 years of age who have not received Tdap previously.

Routine: Adults should receive a single dose of Tdap to replace a single dose of Td for booster immunization against tetanus, diphtheria, and pertussis if they received the last dose of tetanus toxoid-containing vaccine (e.g., Td) >10 years earlier.

Shorter interval between Td and Tdap: Tdap may be given at an interval shorter than 10 years since receipt of the last dose of tetanus toxoid-containing vaccine to protect against pertussis. The safety of an interval as short as approximately 2 years between administration of Td and Tdap is supported by a Canadian study of children and adolescents. The dose of Tdap replaces the next scheduled booster dose of Td.

Prevention of pertussis among infants <12 months of age by vaccinating adult contacts: Adults who have or who anticipate having close contact with an infant <12 months of age (e.g., parents, grandparents <65 years of age, childcare providers, health-care workers) should receive a single dose of Tdap. An interval of 2 years or more since the last dose of tetanus toxoid-containing vaccine is suggested; a shorter interval can be used. Ideally, Tdap should be given at least one month before beginning close contact with the infant. Women should receive a dose of Tdap in the immediate post-partum period if they previously have not received Tdap. Any woman who might become pregnant is encouraged to receive a single dose of Tdap.

Health-care personnel: Health-care personnel who work in hospitals or ambulatory care settings and have direct patient contact should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap. Priority should be given to vaccination of health-care personnel with direct contact with infants aged <12 months. An interval as short as 2 years from the last dose of Td is recommended for the Tdap dose. Other health-care personnel (i.e., those who do not work in hospitals or ambulatory care settings or who do not have direct patient contact) should receive a single dose of Tdap according to the routine recommendation and interval guidance for use of Tdap among adults. However, these personnel are encouraged to receive the Tdap dose at an interval as short as 2 years following the last Td. Hospitals and ambulatory care facilities should provide Tdap for health-care personnel and use approaches that maximize vaccination rates such as education about the benefits of vaccination, convenient access, and provision of Tdap at no charge.

Simultaneous administration: Tdap should be administered with other vaccines that are indicated during the same visit when feasible. Each vaccine should be administered using a separate syringe at a different anatomic site.

## Special Situations

Tetanus prophylaxis in wound management: Adults 19-64 years of age who require a tetanus toxoid-containing vaccine as part of wound management should receive Tdap instead of Td if they previously have not received Tdap. If Tdap is not available or was administered previously, Td should be administered.

Incomplete or unknown vaccination history: Adults who have never received tetanus and diphtheria toxoid-containing vaccine should receive a series of three vaccinations. The preferred schedule is a dose of Tdap, followed by a dose of Td >4 weeks later, and a second dose of Td 6 to 12 months later. Tdap can substitute for Td for any one of the three doses in the series.

History of pertussis: Adults with a history of pertussis generally should receive Tdap according to routine recommendations.

Pregnancy: Pregnancy is not a contraindication to Tdap or Td vaccination. Guidance on the use of Tdap during pregnancy is under consideration by ACIP. At this time, pregnant women who received the last tetanus toxoid-containing vaccine <10 years earlier should receive Tdap after delivery, according to routine recommendations for vaccinating adult contacts of infants <12 months of age. Women who received the last tetanus toxoid-containing vaccine >10 years earlier should receive Td during pregnancy in preference to Tdap, and pregnant women who have not received the primary 3-dose vaccination series for tetanus should begin the Td series during pregnancy. If Td is indicated during pregnancy, vaccinating during the second or third trimester is preferred when feasible.

Adults >65 years of age: Tdap is not licensed for use among adults >65 years of age. Recommendations for use of Tdap among adults >65 years of age will be updated as new data become available. All adults, including adults >65 years of age, should receive a dose of tetanus toxoid- and diphtheria toxoid-containing vaccine every 10 years and as indicated for wound management.

Contraindications to Tdap

- ❑ History of serious allergic reaction (i.e., anaphylaxis) to vaccine components
- ❑ History of encephalopathy (e.g., coma, prolonged seizures) not attributable to an identifiable cause within 7 days following administration of a pertussis vaccine.

Precautions and reasons to defer Tdap:

- ❑ Guillain-Barré Syndrome (GBS) ≤6 weeks after a previous dose of a tetanus toxoid-containing vaccine
- ❑ Moderate to severe acute illness
- ❑ Unstable neurological condition
- ❑ History of Arthus hypersensitivity reaction to a tetanus toxoid-containing vaccine administered <10 years previously.

Reporting Adverse Events after Vaccination:

All clinically significant adverse events following vaccination should be reported to VAERS, even if a causal relationship to vaccination is uncertain. VAERS reporting forms and information are available electronically at http://www.vaers.hhs.gov/
or by calling (800) 822-7967. Providers are encouraged to report electronically at
https://secure.vaers.org/VaersDataEntryintro.htm

Additional information about Tdap and pertussis is available from the CDC at
http://www.cdc.gov/nip/home-hcp.htm

**Contributed by: Kathleen F. Gensheimer**

## *Please call Maine CDC to report all reportable diseases:*

**Telephone Disease Reporting Line:**
**24 hours / 7 days**
**1 800 821-5821**

**Consultation and Inquiries:**
**24 hours / 7 days**
**1 800 821-5821**

**Facsimile Disease Reporting Line:**
**24 hours / 7 days**
**1 800 293-753**

## *The Epi-Gram Editorial Board:*



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